

Amendments to the Drawings

Pursuant to the Examiner's suggestion, Applicant has amended Figures 1 and 5 by adding the text legend "Prior Art" to each. A complete set of replacement drawings, including the noted amendments to Figures 1 and 5, are enclosed herewith.

Remarks/Arguments

Claims 1-43 are pending in the application.

The Examiner has objected to the specification as containing a typographical error in the paragraph that begins on page 11, line 31. Applicant has amended the specification in this reply addressing this ground of objection.

In addition, the Examiner has objected to the drawings, requesting that Figures 1 and 5 be labeled as prior art. Applicant has amended Figures 1 and 5, adding the legend "Prior Art" to each, thereby addressing these objections. A complete set of replacement drawings, including the noted amendments to Figures 1 and 5, are enclosed herewith.

Further, the Examiner has objected to the preambles of claims 1, 10 and 24, suggested that they be amended to read "A computer implemented method" to avoid potential problems with 35 U.S.C. § 101. As a result, Applicant has amended the preambles of claims 1, 10 and 24 as suggested by the Examiner. The Examiner has also objected to the preamble of claim 21, suggesting that it be amended to read "An article comprising a computer readable storage medium" to similarly avoid potential problems under 35 U.S.C. § 101. As such, Applicant has also amended the preamble of claim 21 as suggested by the Examiner.

In addition, the Examiner has objected to claim 1, stating that the meaning of the phrase "before execution of an end transaction procedure begins" is unclear. Applicant has amended claim 1, as well as claims 17, 21, 24 and 28, to recite: "before any directive indicating commencement of an end transaction procedure is broadcast to the access modules" in replacement of the above noted language, thereby addressing this ground for objection.

The Examiner has also objected to claims 1, 17, 24 and 28 as omitting essential steps as given by steps 234 and 236 of Figure 6 of the Application. However, Applicant

would like to respectfully point out that nowhere in the specification does Applicant disclose steps 234 and 236 as being essential to the invention of claim 1 as is required for the Examiner to sustain an objection for omission of essential steps (*see, e.g.*, 35 U.S.C. § 112; MPEP § 2172.01; *see also*, *In re Mayhew*, 527 F.2d 1229 (1976)). Rather, Applicant's claims 1, 17, 24 and 28 recite all of the essential steps of one aspect of Applicant's invention which, for example, as stated in the Summary of the Invention comprises:

“In general, a method of performing a transaction in a database system comprises receiving a transaction to be performed, wherein the transaction is processed by a plurality of access modules. A flush of a transaction log is performed in each access module before an end transaction procedure.”

Thus, pursuant to the specification, the essential steps of one aspect of Applicant's invention include the steps of receiving a transaction to be performed by a plurality of access modules, and flushing a transaction log in each access module before performance of an end transaction procedure. While Applicant further discloses identifying the last step of a transaction, and determining if all of the access modules are used in the last step (*see, e.g.*, Application, Figure 6, steps 234 & 236), nowhere does Applicant disclose these additional steps to be “essential” to the invention. Rather, as additionally evidenced by dependent claim 4, Applicant discloses these steps to be further limitations of the above recited general invention aspect. Therefore, as Applicant's claims 1, 17, 24 and 28 include at least the minimum steps recited by Applicant, Applicant has claimed the essential steps of its invention. As a result, Applicant respectfully traverses the objection to claims 1, 17, 24 and 28, and their respective dependents on this basis.

Finally, the Examiner has rejected claims 1-43 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,544,359 to Tada et al. (hereinafter “Tada”) in view of Jim Gray & Andreas Reuter, “Transaction Processing: Concepts and Techniques” (Morgan Kaufmann, 1993) (hereinafter “Gray”). In light of the arguments below, Applicant asks the Office to reconsider these rejections and to allow all of the claims.

The 103(a) Rejections over Tada in view of Gray

Tada does not teach or suggest flushing a transaction log from volatile storage to non-volatile storage “*before* any directive indicating commencement of an end transaction procedure is broadcast to the access modules,” as required by Applicant’s claims 1, 17, 21, 24 and 28 (emphasis added). Rather, as cited by the Examiner, and noted by Applicant in prior Office action replies, Tada discloses writing historical log file (HLF) data to nonvolatile HLF buffer memory (*see* Tada, FIG. 5, step S10) *after* issuing a transaction end (TRN-END) macro instruction (*see* Tada, FIG. 5, step S06) (*see also* Tada, col. 10, line 9, to col. 12, line 3). Thus, the writing of log data to nonvolatile memory in Tada occurs *after* execution of an end transaction procedure has begun, contrary to the requirements of Applicant’s claims 1, 17, 21, 24 and 28.

Further, and as also noted by Applicant in prior Office action replies, the Examiner cited portions of Gray, which teach general transaction processing and management techniques including a “two-phase commit protocol” and a “basic DO-UNDO-REDO protocol” (*see, e.g.,* Gray, pg. 574), do not address the deficiencies of Tada. While Gray does discuss a generic “log_flush” routine (*see, e.g.,* Gray, pg. 502), Applicant is unaware of, and the Examiner has failed to point out, any section of Gray that teaches or suggests flushing a transaction log from volatile storage to non-volatile storage by each access module *before* any directive indicating commencement of an end transaction procedure is broadcast to the access modules as required by Applicant’s claims 1, 17, 21, 24 and 28. Thus, neither Tada nor Gray, taken alone or in combination, teaches or suggests all the limitations of Applicant’s claims 1, 17, 21, 24 and 28. The result is that claims 1, 17, 21, 24 and 28 and their dependents are patentable over Tada in view of Gray under 35 U.S.C. § 103(a).

Regarding claim 10, the Examiner concedes that Tada does not disclose a “first access module sending an end transaction directive to a fallback [access] module associated with the first access module, the fallback [access] module being part of the cluster,” as recited by Applicant. As a result, the Examiner cites pages 34, 61-62, 562-

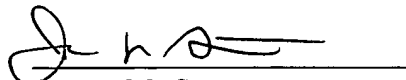
576 and 943 of Gray in an effort to teach this element. However, as noted in prior Office action replies, the Examiner cited portions of Gray teach general transaction processing and management techniques. While Gray does additionally disclose “replicated data” (*see, e.g.*, Gray, page 34), Applicant is unaware of any section of Gray that teaches a fallback access module which, as defined by Applicant, automatically stores a “copy of a data portion, such as a row of a table . . . on a different access module 20 than where the original of the data portion is stored” (*see* Application, pg. 15, line 29 – pg. 16, line 1). As a result, Applicant is similarly unaware of any section of Gray that even suggests “a first access module sending an end transaction directive to a fallback module associated with the first access module,” as required by Applicant’s claim 10.

In response to Applicant’s prior, related argument, the Examiner states that “Gray teaches *during* commit, the first resource manager will send message to other resource manager to ask for its vote. When all the resource managers confirm that they are ready to commit, the first resource manager sends an end transaction directive to other resource manager/fallback module” (*see* July 26, 2005 Office action, page 16, paragraph 14) (emphasis added). While interesting, even if Gray were to disclose the above quoted method, a person of ordinary skill in the art would readily appreciated that sending messages from one resource manager to another during a commit process is not at all the same as, nor is it even suggestive of, a first access module sending an end transaction directive to a fallback access module associated with the first access module *after* commitment of a transaction, as required by Applicant’s claim 10. Thus, neither Tada nor Gray, taken alone or in combination, teaches or suggests all the limitations of Applicant’s claim 10. The result is that claim 10 and its dependents are patentable over Tada in view of Gray under 35 U.S.C. § 103(a).

Conclusions

In light of the foregoing, Applicant asks the Office to reconsider this application and to allow all of the claims. Please apply any charges that might be due, excepting the issue fee but including fees for extensions of time, to deposit account 14-0225.

Respectfully,


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